AusNet

7 November 2024

Locked Bag 14051
Melbourne City Mail Centre
Victoria 8001 Australia
T: 1300 360 795
www.ausnetservices.com.au

Christian Dunk
A/Director
Australian Energy Market Commission

Via website lodgement

Dear Christian

Submission to AEMC on the inclusion of distribution network resilience in the National Electricity Rules

AusNet welcomes the opportunity to provide feedback on the network resilience rule change. Climate change has and will continue to increase the frequency and size of extreme weather events leading to prolonged outages. These have broad impacts, both economic and social. Our customers have told us they welcome both proactive investment in the network to reduce the risk of prolonged outages, and increased support during these events. We have developed and consulted on a holistic network resilience approach with this in mind.

We support the rule change to add network resilience to the capital and operating expenditure factors which would promote regulatory certainty by requiring the AER to explicitly consider network resilience when setting revenues in regulatory determinations. We also agree that the AER should develop and publish distribution network resilience guidelines.

The network resilience guideline will provide network businesses with more certainty around data requirements and expected outcomes when submitting regulatory proposals to the AER, albeit it may be too late for the upcoming Victorian resets with regulatory proposals due at the end of January 2025. Nonetheless, a requirement for the AER to consider network resilience in its decision making will be beneficial for Victorian customers.

Over the past 2 years, we have undertaken extensive research as a part of our Electricity Distribution Price Review (EDPR) 2026-31 process, which supports the need for a network resilience rule change. Specifically:

- Our industry-leading Quantifying Customer Values or QCV study – which attaches a dollar value to each unit of unserved energy – has revealed that the value of customer reliability for residential customers has more than doubled from $25.1 to $52.4 per kWh. This is in line with the increasing role of a reliable power supply.

- Our broader benefits quantification study – which assessed willingness to pay and willingness to accept across five value streams – shows that resilience is the top value stream that customers are most willing to pay and accept. Households and businesses have indicated that they are willing to pay $39.6 and $178.7 per annum to avoid one 24-hour long unplanned outage per year[1].

- The results from our energy sentiments survey (produced twice a year) shows that resilience is consistently in the top five strategic priorities for our customers.

We have attached our research findings to this submission and are happy to share any more detail and insights with the AEMC if this would be of assistance.

Sincerely,

[redacted]

Charlotte Eddy
General Manager, Strategy and Regulation (Distribution)
AusNet Services

[1] Resilience Research (AusNet, 2023)

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Customer Insight Series

Quantifying Customer Values

Public Webinar

18 April 2024

Acknowledgement of Country

We acknowledge Aboriginal people as the Traditional Owners and Custodians of the land we live and work on, and we pay our respects to Elders past, present and emerging.

AusNet Tomorrow Customer Insights Series

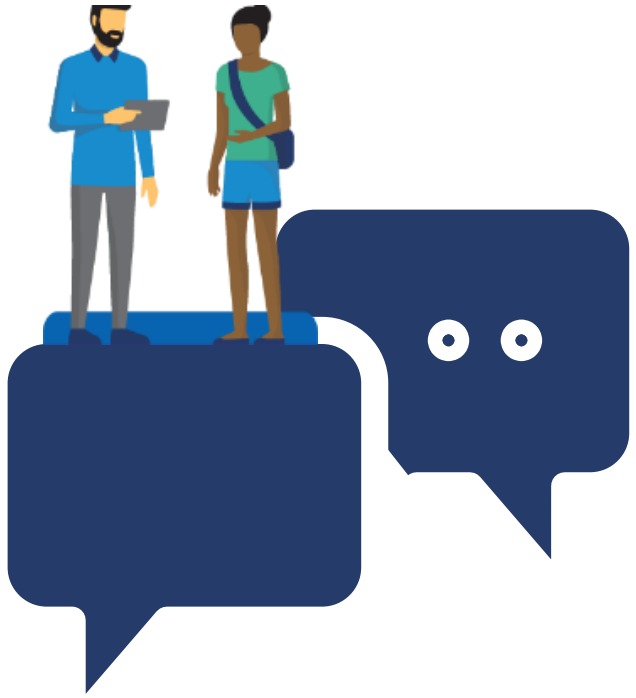
Series 1: Customer Segmentation (June 2023)

Today

Series 2: Quantifying Customer Values (April 2024)

Questions? Go to slido.com and enter #1556337

There will be time for Q&A at the end



Please open Slido and add your questions through the session *(and like those you want answered!)*

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What We Share Today

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This research tells us AusNet customers

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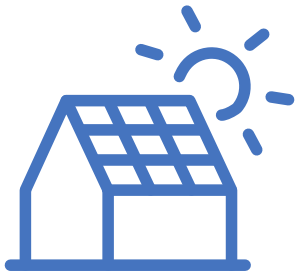
Value reliability higher than AER's current VCR
suggesting the AER's VCR is likely to increase in this year's review

Are open to cost sharing
even where they don't directly benefit, incl. worst served customers and solar exports

See the value in investment
while still being concerned about affordability

Highly value convenience
incl. a value on flexible EV charging



Highly value "not wasting" solar
(their own and others'), above economic levels

Value resilience above all
other values tested, across all demographics

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Project overview

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What the Quantifying Customer Values study tell us

- ✓ **Attaches hard numbers** to things customers value that we otherwise can't quantify, so we can build more holistic, customer-centric business plans
- ✓ **Robust data** we can trust
- ✓ **Shows customers' priorities** across investment drivers
- ✓ **Captures value of service improvements and degradations** to support cost-benefit assessments and trade-off discussions
- ✓ **Complements qualitative** engagement

What it *doesn't* tell us

- **Customers' reasoning** isn't captured en masse
- Limited to **perceived value**. There may be things customers can't quantify and/or don't think to quantify when completing the survey
- **How to apply the values** in business planning

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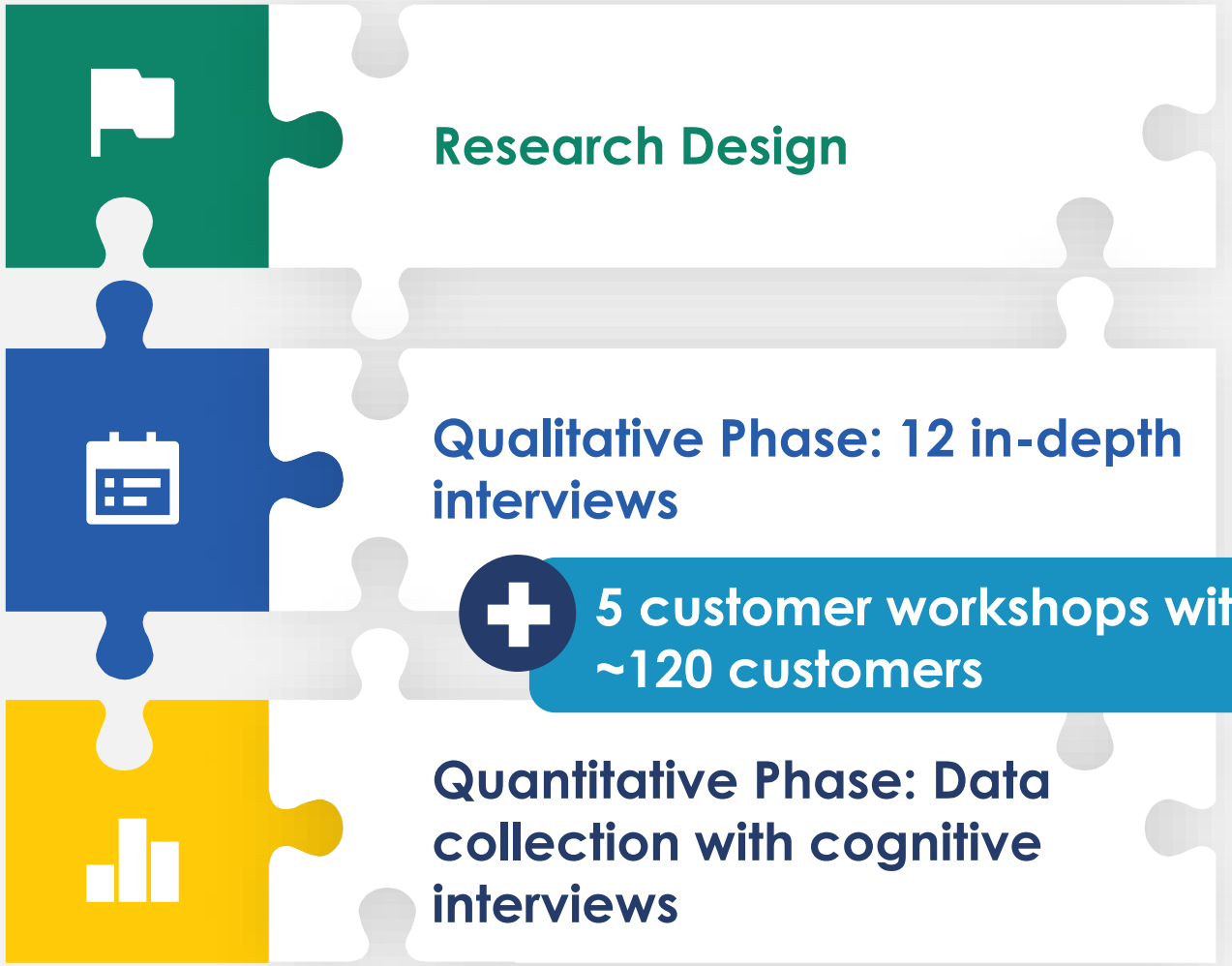
What we did

We closely engaged with EDPR panel members to ensure our approach is robust and, ultimately, build customer and stakeholder confidence in the research findings



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Research Design & Qualitative Phase

Preparation for the quantitative phase involved:

1. **Extensive collaboration with customer advocates** engaged in Electricity Distribution Price Review (EDPR) 2026-31 on the design

2. **Engagement with government and regulators**
   Australian Energy Regulator (AER) & Victorian Department of Energy, Environment & Climate Action (DEECA)

3. **12 x 45min in-depth interviews** with customers to understand values and inform survey design

Application to Quantitative Phase

- Use clear and simple language
- Define key terms
- Explain the funding structure clearly
- Use consistent language when discussing the future base for the exercise
- Clearly differentiate between scenarios for different benefits

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Quantitative Phase

AusNet worked with independent research experts Lewers to conduct a 17-minute online survey. Fieldwork ran from November 2023 to January 2024.

Key Measurements

PART 1

Value of Customer Reliability/ Resilience

- Contingent Valuation (CV) for the base case
  - Reliability
  - Resilience
- Choice Model

PART 2

Broader Benefits Quantification

- Willingness to Pay (WTP)
- Willingness to Accept (WTA)
- Flexible EV Charging
- Enabling Solar Export
- Reliability for Worst Served Customers
- Reliability
- Resilience

+

Willingness to pay for the entire bundle of services

** The Residential and Business cohorts were weighted by feeder group (unban, rural short, rural long) to ensure accurate representation of AusNet's customer base.*

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Part 1

Value of customer reliability and resilience

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Key takeaways

Calculating the value of customer reliability and resilience

1. The AER's current value of customer reliability (VCR) may undervalue the benefit AusNet customers place on reliability

2. The AER's method to quantify unserved energy and calculate outage probabilities could be diluting customers' true value

3. The value of resilience may be better estimated using other methods

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The AER's Value of Customer Reliability (VCR)

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Measures the amount customers are willing to pay to avoid an outage. It is a key input into many of our business cases.

Customer Value of avoiding an outage scenario ÷ **Unserved Energy** typically consumed during the outage X **Probability** of that outage scenario occurring = **VCR**

The AER's metric is based on seven climate/remoteness zones and does not consider outages over 12 hours

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Residential VCR results were almost double the AER's 2023 values *(based on 2019 AER VCR Review)*

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Business results were lower than the AER's value potentially due to sample composition

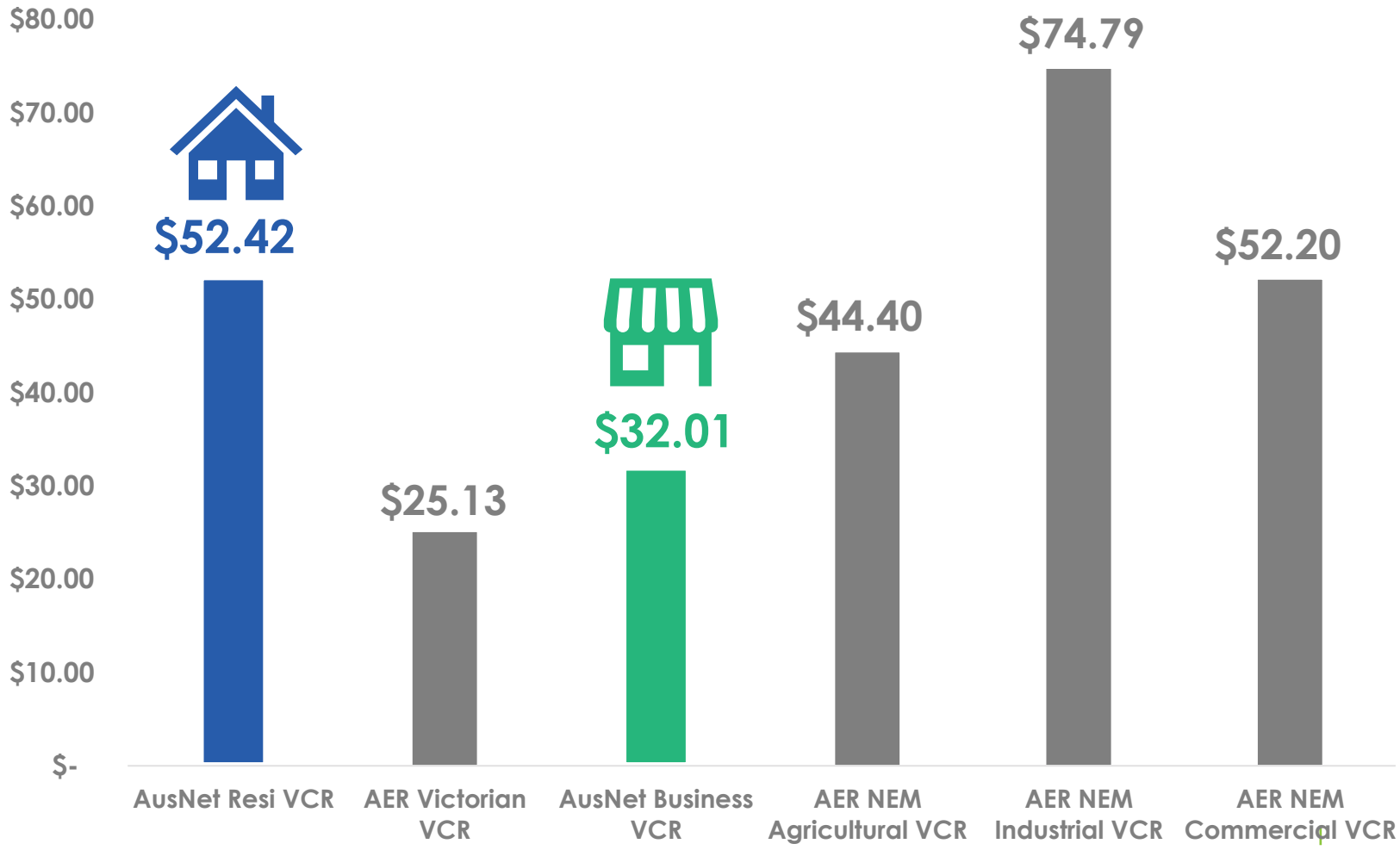
What's Driving the Difference?

Residential:

- Higher WTP to avoid outages
- Lower kWh values
- Different outage probabilities

Business:

- Only considering small business



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Resilience WTP values were dwarfed due to the large volume of energy consumed during a long-duration outage

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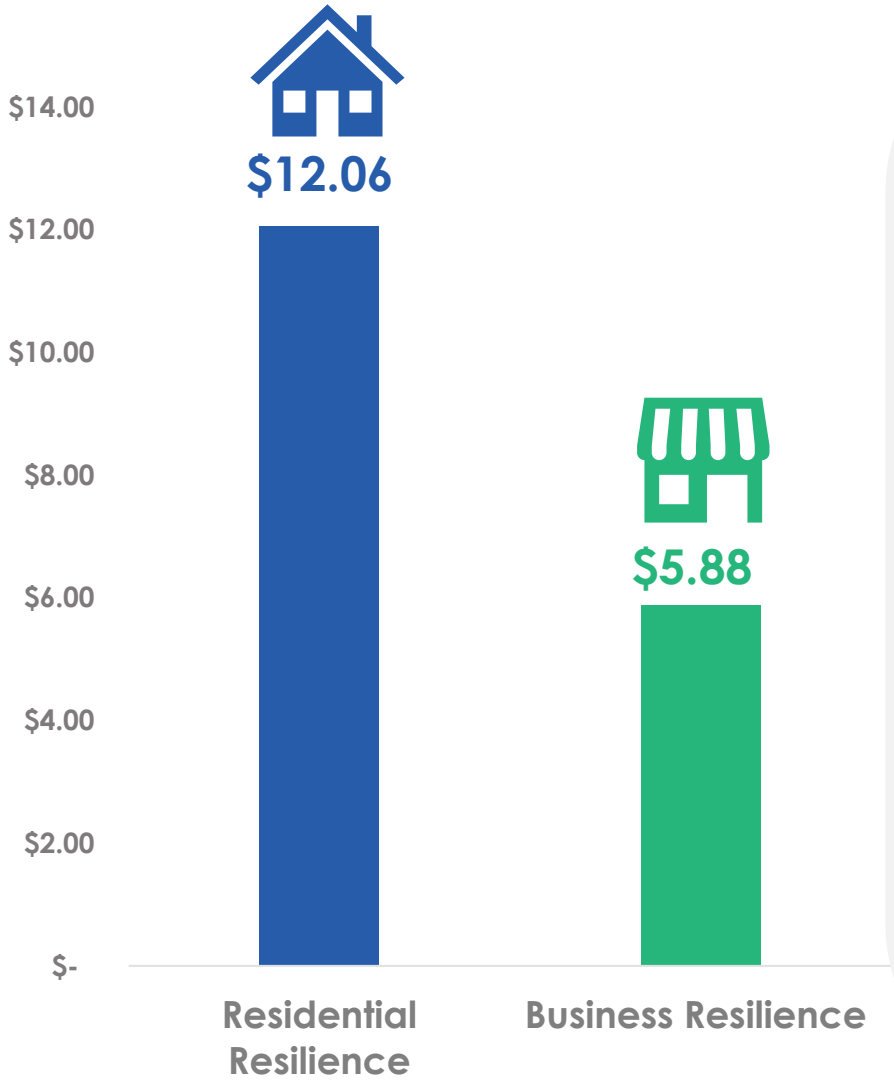
Suggesting another method of assessment might be better to quantify the value of avoiding these outages



This is driven by the large volume of data consumed during long duration outages

Outage Duration	WTP		Unserved Energy		$/kWh		Outage Probability
12	$151.83	÷	14.7	=	$10.35	✖	0.1%
12 - 24	$553.53	÷	29.3	=	$18.86	✖	5.9%
24 - 36	$686.05	÷	44.0	=	$15.58	✖	0.4%
36 - 72	$735.07	÷	88.1	=	$8.35	✖	2.0%

$/kWh calculations for residential short customers to avoid a weekday summer outage

Part 2

Quantified broader benefits

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Definitions

To comprehensively understand customers' preferences and priorities, we computed three distinct measures of value across five value streams.

Willingness to Accept (WTA)

Minimum compensation a customer would accept to lose a service. It depends on various factors such as the individual's valuation of the item, opportunity costs, and personal circumstances.

Willingness to Pay (WTP)

Maximum amount a customer is willing to pay for a service. This can vary based on factors such as income, preferences, perceived benefits, and market conditions.

Rebased Willingness to Pay (R-WTP)

Maximum amount a customer is willing to pay for a service determined by their willingness to pay for the ***entire bundle*** **of services**.

R-WTP adjusts for overall willingness to pay, which is **critical for balancing affordability**

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Rebased WTP is a more realistic view of customer's willingness and ability to pay for service improvements as a bundle

HOUSEHOLDS

Dollars expressed as per customer, per annum

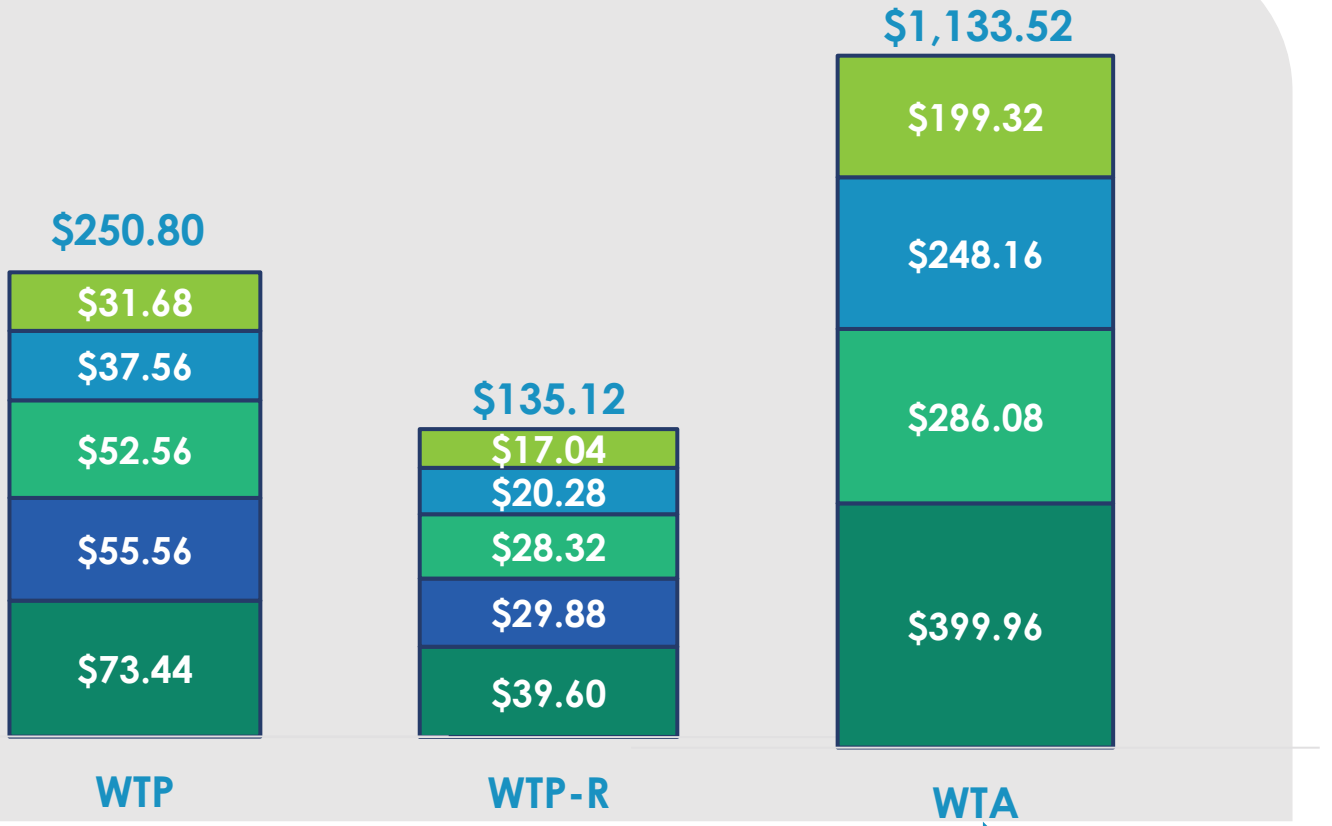
Reliability
Avoid/experience one unplanned 1h outage

EV Charging
Investing (or not) to allow for flexible charging

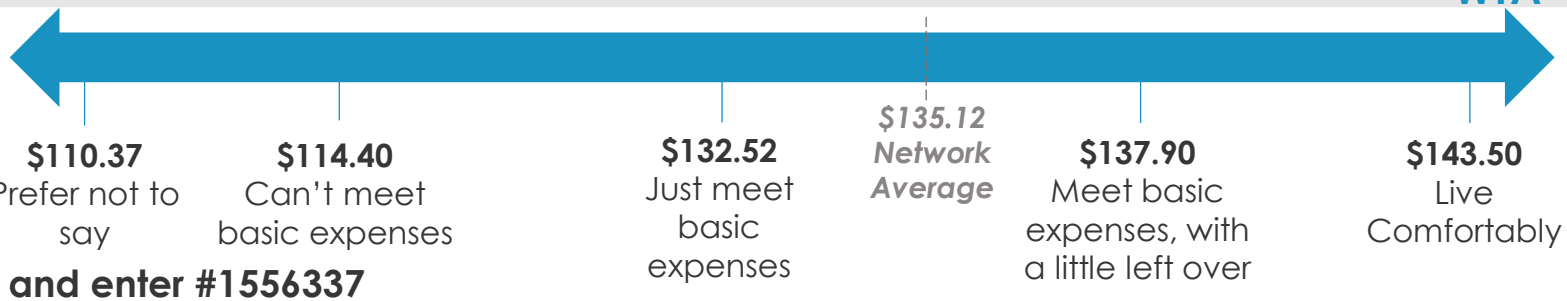
Solar Exports
Investing (or not) to allow unused rooftop PV to be exported to the grid

Improving service levels for worst served customers

Resilience
Avoid/Experience One 24h Outage



R-WTP increases with capacity to pay, within 30% range



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BUSINESS

Business customers' investment priorities differ between WTP and WTA

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Dollars expressed as per customer, per annum

Reliability
Avoid/Experience one unplanned 1h outage

EV Charging
Investing (or not) to allow for flexible charging

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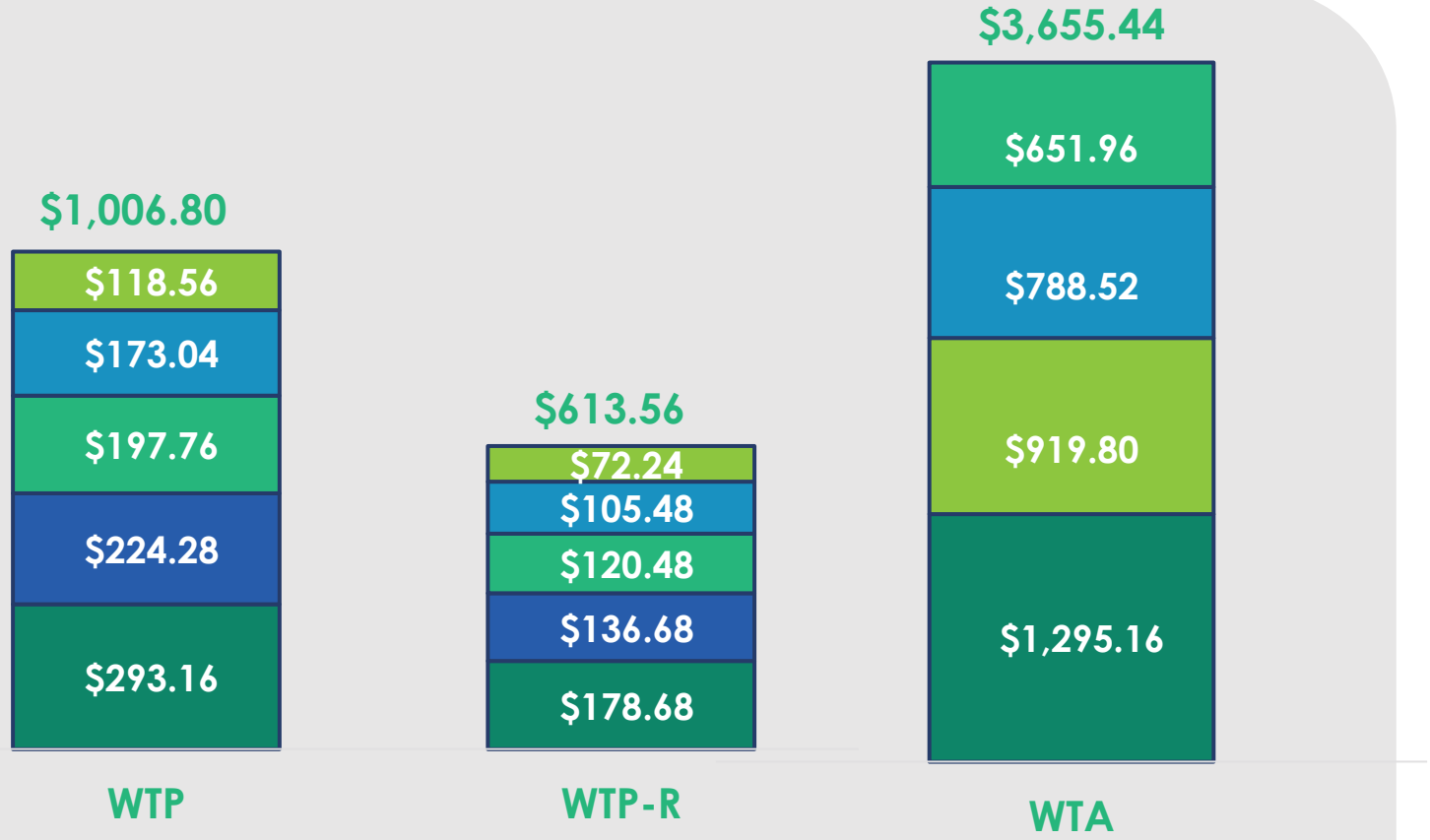
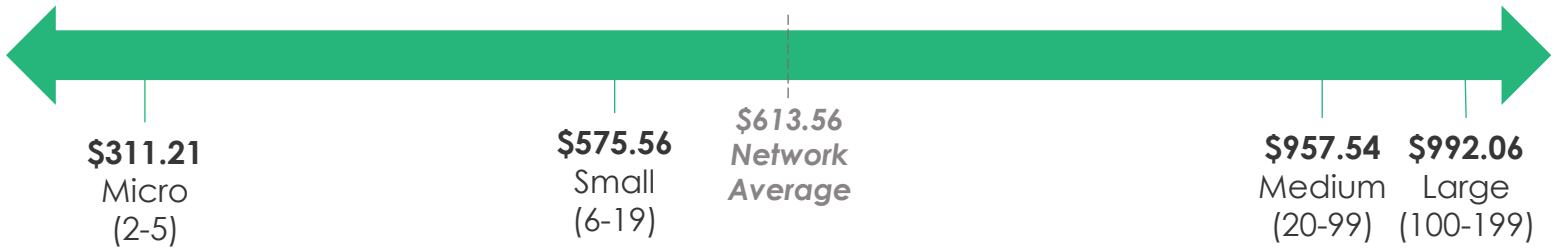


R-WTP increases with business size



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Flexible EV Charging

Investing (or not) to allow for flexible charging

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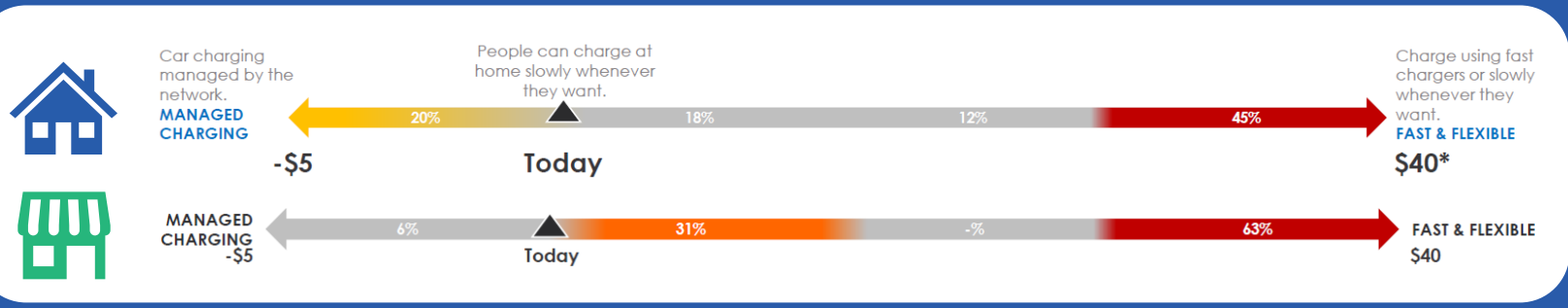
Both households ($37.56pa) and businesses ($118.56pa) customers attach a positive value to having flexibility in speed and timing of EV charging.

	Households	Businesses
Willingness to pay	**$37.56** 45c per KWh	**$118.56** $3.37 per KWh
Rebased willingness to pay	**$20.28** 14.98% of total	**$72.24** 11.48% of total
Willingness to accept	**$248.16** $2.97 per KWh	**$788.52** $24.82 per KWh

Sentiment is broadly consistent with customer workshop insights



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Flexible EV Charging

Investing (or not) to allow for flexible charging

Customers are willing to contribute to flexible EV charging regardless of their current/future EV ownership status.

- Amount varies up/down with perceived direct benefit to themselves.
- Widespread reluctance to accept managed charging, even from those who do not intend to purchase an EV

Variation from average WTP ($yearly)

WTP more than average *~1 in 5 households* *~2 in 5 business*	Have EV today*	▲$15.43	▲$148.14
	Intend to purchase before 2031	▲$32.03	▲$50.87
	AVERAGE WTP	*$37.56*	*$118.56*
WTP still positive, but lower than average *~4 in 5 households* *~3 in 5 of business*	Don't intend to purchase before 2031	▼$6.04	▼$40.12
	Never intend to purchase	▼$19.79	▼$50.97

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Solar exports

Investing (or not) to allow solar exports from new solar connections

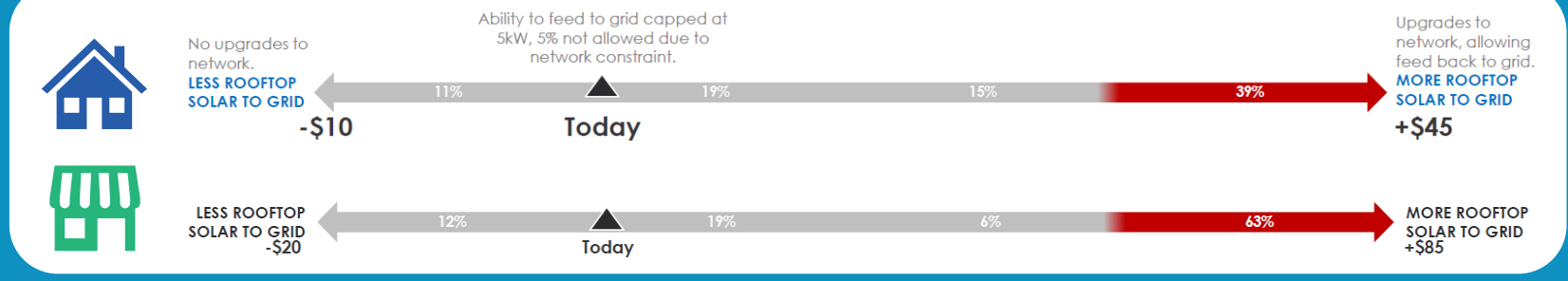
AusNet

Both households ($52.26pa) and businesses ($197.74pa) customers attach a positive value to investing to enable more solar exports.

WTP to avoid 'spilling solar' is higher than avoiding managed charging, with customers keen to minimise electricity wasted.

Willingness to pay	**$52.26** $4.38 per month	**$197.74** $16.48 per month
Rebased willingness to pay	**$28.32** 20.95% of total	**$120.48** 19.46% of total
Willingness to accept	**$286.12**	**$651.91**

Sentiment is broadly consistent with customer workshop insights



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Reliability Improvement for Worst-Served Customers

Investing (or not) to improve electricity reliability on the edge of the AusNet network

AusNet

Both **households** ($55.65pa) and **businesses** ($224.28pa) customers attach a positive value to improve reliability for worst served customers.

Willingness to pay	**$55.65** $4.63 per month	**$224.28** $18.69 per month
Rebased willingness to pay	**$29.88** 22.50% of total	**$136.68** 29.10% of total
Willingness to accept	**Not Asked**	**Not Asked**

Note we did not test a degradation case (i.e. de-investing for more outages).

Sentiment is broadly consistent with AusNet research and engagement on equity across network

>8 in 10 customers say electricity should be as reliable in regional areas as it is in urban areas *(AusNet's Energy Sentiment Tracker, Spring 2023)*.

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Reliability Improvement for Worst-Served Customers

Investing (or not) to improve electricity reliability on the edge of the AusNet network

Interestingly, there was a negative correlation between direct benefit and amount customers are willing to pay to improve reliability for worst-served customers

- **Urban customers willing to pay the most to improve reliability for customers with the worst supply**
- **Reasons may include:**
  - a positive correlation with *capacity* to pay
  - Some customers out of the city are more resigned to having poorer reliability
  - Out-of-city customers may be less willing to pay for potential improvements for others if they feel their own reliability needs improving.

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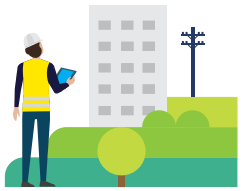
Variation from average WTP ($yearly)

			
WTP more than average	Urban Feeders	$4.69 ▲	$23.21 ▲
	AVERAGE WTP	$55.65	$224.28
WTP still positive, but lower than average	Rural Short Feeders	$1.80 ▼	$19.30 ▼
	Rural Long Feeders	$10.82 ▼	



Reliability

Investing (or not) to reduce one 1 hour-long unplanned outage per year

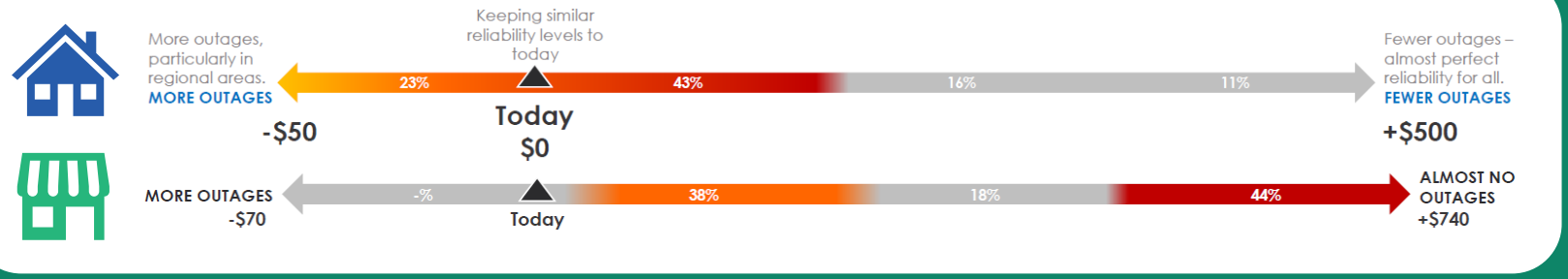
AusNet

Both households ($31.68pa) and businesses ($173.04pa) customers attach a positive value to reduce one 1 hour-long unplanned outage per year.

Willingness to pay	**$31.68** $2.64 per month	**$173.04** $14.42 per month
Rebased willingness to pay	**$17.04** 12.63% of total	**$105.48** 17.19% of total
Willingness to accept	**$199.32** $16.61 per month	**$919.80** $76.65 per month
AER's VCR	**$25.36/kWh**	**Not calculated^**
AusNet VCR	**$53.42/kWh**	**$32.10/kWh**

^ AER VCRs for agriculture, commercial and industrial customers range from $44.40-74.79

Sentiment is broadly consistent with customer workshop insights



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Resilience

Investing (or not) to reduce one 24-hour-long unplanned outage per year

AusNet

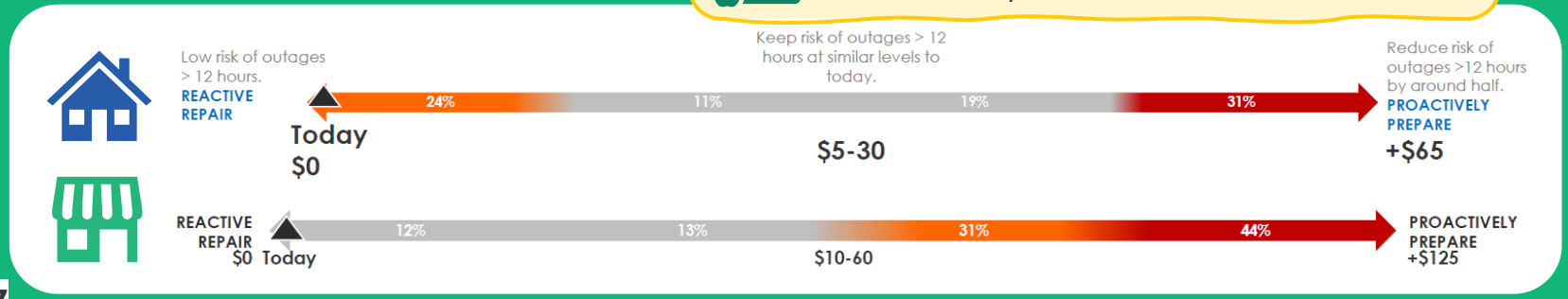
Both households ($73.44pa) and businesses ($293.16pa) customers attach a positive value to reducing one 24-hour-long unplanned outage per year.

Willingness to pay	**$73.44** $6.12 per month	**$293.16** $24.43 per month
Rebased willingness to pay	**$39.60** 29.29% of total	**$178.68** 29.12% of total
Willingness to accept	**$286.08** $23.84 per month	**$1,295.26** $107.94
Resilience Research* (AusNet, 2023)	**$45.35/kWh**	**$62.90/kWh**

** Conservative estimate of VCR as these are actual costs incurred and therefore do not account for broader economic and social costs of a prolonged outages, including emotional distress and lost productivity*

Following the recent storm events in February 2024, AusNet has received $4.3M worth of claims for spoilt food across 2,929 customers ($1,468 per customer).

Sentiment is broadly consistent with customer workshop insights



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Next steps

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In collaboration with our EDPR customer panels, we are exploring how to apply the research findings to our investment plans

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			VCR - Reliability	VCR - Resilience
Flexible EV Charging	Enabling Solar Export	Improving Reliability for Worst Served Customers	Reliability	Resilience
EDPR expenditure drivers being explored for QCV application	CER integration expenditure	Augex to manage EV charging	Demand-driven augex	
	Upgrades for Worst Served Customers	Replacement expenditure	Resilience expenditure (incl. operational solutions)	

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Our next steps

Continuing to **share findings publicly with key stakeholders and other interested parties** to represent AusNet customers' interests and maximise the value of the study

Engaging with our **Electricity Distribution Price Review (EDPR) panels** on how we reflect these values in our 2026-31 business cases

Continuing to engage with **teams across AusNet** to promote customer-focused and more holistic decision-making

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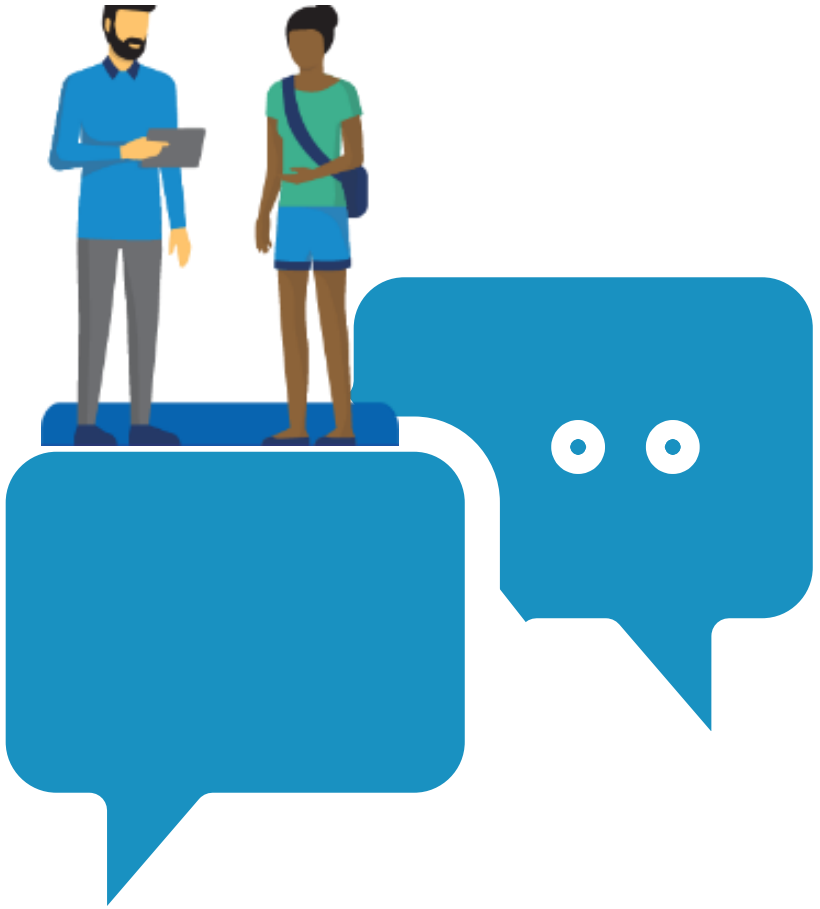
Q&A



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Thank You

AusNet Services

Level 31

2 Southbank Boulevard

Southbank VIC 3006

T +61 3 9695 6000

F +61 3 9695 6666

Locked Bag 14051 Melbourne City Mail C entre Melbourne VIC 8001

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